



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,318	03/16/2004	Takuo Mukai	2271/1539	3921

7590 10/16/2007
Ivan S. Kavrukov, Esq.
Cooper & Dunham LLP
1185 Avenue of the Americas
New York, NY 10036

EXAMINER	
HAN, QI	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
10/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,318	Applicant(s) MUKAI ET AL.	
	Examiner Qi Han	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-51 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>03/16/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement submitted on 03/16/2004 have been considered by the examiner (see attached PTO-1449), except the IDS reference 5,683,135, which has a error since the inventor's name does not match and its content appears to be irrelevant to the instant application (see attached Form 1449/PTO).

Allowable Subject Matter

3. Claims 1-51 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent **claims 1, 9, 17, 18, 26, 34, 35, 43 and 51**, the instant application is directed to a semiconductor device, a method of providing the semiconductor device, a mobile phone and a method of mobile communication using the semiconductor device. Each of the independent claims, combining with certain well-know features in the art, identifies the uniquely distinct features of proving semiconductor device, comprising:

converting (by using a first converter) a first digital audio signal sampled with a predetermined audio sampling frequency for digital audio into a second digital audio signal sampled with a predetermined voice sampling frequency for voice signals;

converting (by using a second converter) a first digital voice signal sampled with the predetermined voice sampling frequency into a second digital voice signal sampled with the predetermined audio sampling frequency;

digitally processing/computing (by using a first processing circuit) the second digital audio signal sampled with the predetermined voice sampling frequency and a digital voice signal; and

digitally processing/computing (by using a second processing circuit) the second digital voice signal sampled with the predetermined audio sampling frequency and the first digital audio signal sampled with the predetermined audio sampling frequency.

4. The prior art of record, Heyl (US 5,774, 567), Venkitachalam et al. (US 6,608,572 B2), Lin et al. (US 6,088,461), Leme et al. (US 6,154,161), and Ito (US 6,683,927 B1), provided numerous teachings and techniques of mixing and converting audio signals/channels, including digitally mixing weighted sound inputs using delta sigma modulator and level adjustment circuits; providing integrated analog to digital and sample rate converter; using integrated audio processor circuit programmable for dynamically controlling/adjusting user-selected volume of the audio for multiple channels/inputs; providing digital filter over-sampling digital audio signal and digitally adding the (audio) data, supplying program code for realizing the same functions by computer; and providing integrated, multi-input audio mixer with channel selecting feature.

However, the combined features stated above, are not anticipated by, nor made obvious over the prior art of the record.

Conclusion

5. This application is in condition for allowance **except** for the following formal matters:

The specification/drawing is objected to because:

- a. In abstract, summary and claims (1, 9, 17), the terms “a first **digital processor**” and “a second **digital processor**” are inconsistent with detailed disclosure (page 11) and drawings (Figs. 2 and 4, blocks 16-18). It is noted that “digital processor” has a special meaning that is commonly used to refer CPU (or microprocessor or DSP) type of IC device in the semiconductor related art, which is not specifically described in the specification. Further, it is noted that the applicant does not provide a user-defined term of “digital processor” in specification either. Appropriate correction for the inconsistency problem is required. The examiner suggests considering to replace all terms of “digital processor” with --digital processing circuit--.
- b. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed “a first **digital processor**” and “a second **digital processor**” (in claims 1, 9, 17) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The examiner suggests considering to replace “digital processor” with --digital processing circuit--, which is supported by both specification (page 11, lines 1-2) and drawings (Figs. 2 and 4, blocks 16-18).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

c. Fig. 4, at bottom, the line with text "DIGITAL SIGNAL" appears to show all processed signals are digital, which is not true. Appropriate correction is required. The examiner suggests considering to add a vertical line at the end of the arrow.

6. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Art Unit: 2626

7. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to: 571-273-8300, (for formal communications intended for entry)

Or: 571-273-8300, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

If no Mail Stop is indicated below, the line beginning Mail Stop should be omitted from the address.

Effective January 14, 2005, except correspondence for Maintenance Fee payments, Deposit Account Replenishments (see 1.25(c)(4)), and Licensing and Review (see 37 CFR 5.1(c) and 5.2(c)), please address correspondence to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, etc.) as follows:

U.S. Patent and Trademark Office
Customer Window, Mail Stop _____
Randolph Building
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see <http://pair-direct.uspto.gov>.

QH/qh
October 11, 2007


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER